

REC'D 8/9/91
F.B.



Mara Elter
Regional Project Officer
U.S. Environmental Protection Agency
Waste Management Division
JFK Federal Building, Room 2203
Boston, Massachusetts 02203

August 7, 1991

Reference: Contract No. 68-W9-0003, TES 6
Work Assignment No. R01005
Ciba-Geigy
Corrective Action Oversight

Subject: Deliverable: EPA Split-Sample Data (**RAS Case 16259**)

Dear Mara:

In accordance with the reporting requirements of the subject Work Assignment, enclosed are two (2) copies of the EPA Split-Sample Data (**RAS Case 16259**) for the Ciba-Geigy facility. This submittal satisfies an additional deliverable requirement for this Work Assignment.

AQUEDUS

Please note this deliverable summarizes validated analytical data from the April 18, 1991 sampling effort. As required by the Region, the complete data validation report was submitted to the Regional Sample Control Custodian (RSCC) and ESD-Lexington on July 24, 1991. The validation was performed by our subcontractor, QuantaLex.

Questions regarding this submission should be directed to the Alliance Project Manager, Joanna Hall at (508) 970-5757 ext 5146, or me.

Sincerely yours,

Peter Spawn
Regional Manager

PS/km

Enclosure



SEMS DocID 666775

cc: **Frank Battaglia/EPA Work Assignment Manager**
Jill E. Robbins/TES-6 Contracting Officer (letter only)
Jack Lewis, Jr./Alliance TES-6 Contracts Manager (letter only)
Joanna Hall/Alliance Project Manager

EPA SPLIT-SAMPLE ANALYTICAL RESULTS
RAS CASE 16259
CIBA-GEIGY
CRANSTON, RHODE ISLAND
CORRECTIVE ACTION OVERSIGHT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Waste Management Division
JFK Federal Building, Room 2203
Boston, Massachusetts 02203

Work Assignment No.:	R01005
EPA Region:	I
EPA Site/Facility I.D. No.:	N/A
Contract No.:	68-W9-0003 (TES 6)
Alliance Project No.:	1-635-058-1-1000-0
Alliance Project Manager:	Joanna Hall
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Date Prepared:	August 7, 1991

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PRIVILEGED WORK - Product Prepared In Anticipation of Litigation



PRESENTATION OF ANALYTICAL RESULTS FROM EPA SPLIT SAMPLES

Site: Ciba-Geigy
Date Sampled: April 18, 1991
Case Number: 16259
SDG Nos: MAT367, SD6 AZ328
Contract: 68-W9-003, TES-6
WA Number: R01005

Introduction

The attached data and recommendations summary tables outline the validated analytical results of Case No. 16259, collected at the site of the former Ciba-Geigy facility. The objective for the collection of split samples is not the quantitative, conventional approach typically used for oversight tasks. The objective is to qualitatively compare the analytes identified by RAS CLP analytical methods to those identified by Ciba-Geigy using SW-846 methods. These data tables are formatted such that the first page shows only the detected analysis concentrations. The second page lists the quantitation limit for each analyte in each sample. These data tables are available on disk in Lotus 1-2-3 format. SAS Case 6208A was also collected on April 18th for dioxin analysis. Data from this SAS Case were not included because analytical results have not yet been received. Data from SAS Case 6208A will be presented upon their receipt.

The samples listed below were submitted as RAS Case 16259 SAS Case 6208A.

Sample	Sample Type	Sample Location	Analysis
AZ328	Ground water	MW14S	TCL Organics
AZ329	Ground water	MW14S	TCL Organics
AZ330	Ground water	MW11S	TCL Organics
AZ331	Ground water	MW15S	TCL Organics
AZ332	Ground water	MW18S	TCL Organics
AZ333	Rinsate Blank	-----	TCL Organics
AZ334	Trip Blank	-----	TCL VOA
MAT367	Ground water	MW14S	TAL Inorganics
MAT368	Ground water	MW14S	TAL Inorganics
MAT369	Ground water	MW11S	TAL Inorganics
MAT370	Ground water	MW15S	TAL Inorganics
MAT371	Ground water	MW18S	TAL Inorganics
MAT372	Rinsate Blank	-----	TAL Inorganics
6208A-01	Ground water	MW14S	PCDD/PCDF
6208A-02	Ground water	MW14S	PCDD/PCDF
6208A-03	Ground water	MW11S	PCDD/PCDF

6208A-04	Ground water	MW15S	PCDD/PCDF
6208A-05	Ground water	MW18S	PCDD/PCDF
6208A-06	Rinsate Blank	-----	PCDD/PCDF

Validation was performed by QuantaLex, Incorporated under subcontract to Alliance in accordance with:

Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses, USEPA Hazardous Site Evaluation Division - Modified by EPA Region I, November 1, 1988; and

Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses, USEPA Hazardous Site Evaluation Division - Modified by EPA Region I, February, 1989.

A complete validation report has been provided to the Region I RSCC. Alliance has archived all raw analytical data provided by the laboratories.

Quality Control Results

A review of the data validation reports indicates that most data were accepted. The non-detected results for 2-butanone in samples AZ328, 329, 330, 332, 333 and 334 were rejected because the response criteria (%D) was exceeded. Several data points were estimated (J) due to routine laboratory quality control problems. A brief explanation of the laboratory quality control problems is provided on the recommendations summary tables.

Split Sample Comparison Comments

Alliance has not received a copy of Ciba-Geigy's data for each of these split samples. Therefore, a comparison of the split results was not performed at this time.

Split Sample Recommendations

Because Ciba-Geigy's data has not been received, Alliance can not make any recommendations regarding split sample comparisons at this time.

CIBA GEIGY
CASE 16259
TABLE I - RECOMMENDATIONS SUMMARY

TR #	VOA	BNA	Pesticide/PCB
AZ328	A ¹ ,A ² ,A ⁴	A ⁷ ,A ⁸	A
AZ329	A ¹ ,A ² ,A ⁴	A ⁷	A
AZ330	A ¹ ,A ² ,A ⁴	A ⁷	A ⁵
AZ331	A ¹	A ⁷	A ⁵ ,A ⁶
AZ332	A ¹ ,A ²	A ⁷	A
AZ333	A ² ,A ³	A ⁷	A
AZ334	A ² ,A ³	---	---

- A - Accept all data.
- A¹ - Accept data but change positive values for Acetone to revised detection limits due to blank contamination.
- A² - Accept data but reject (R) detection limits for 2-Butanone due to minimum RF being less than 0.05.
- A³ - Accept data but estimate (J) positive values for Acetone due to calibrations being out of range.
- A⁴ - Accept data but estimate (J) positive values for Tetrachloroethene due to calibrations being out of range.
- A⁵ - Accept data but estimate (J) positive values for Aldrin due to calibrations being out of range.
- A⁶ - Accept data but estimate (J) positive values for Aldrin, 4,4'-DDD, and Methoxychlor due to lack of quantitative agreement between columns.
- A⁷ - Accept data but estimate (UJ) detection limits for 4-Chloroaniline, 3-Nitroaniline, and 4-Nitroaniline due to calibrations being out of range.
- A⁸ - Accept data but change positive values for bis(2-Ethylhexyl)phthalate to revised detection limits due to blank contamination.

SKINNER & SHERMAN
CASE 16259

TABLE I - RECOMMENDATIONS SUMMARY

Aluminum	J7	Magnesium	A
Antimony	A	Manganese	A
Arsenic	A	Mercury	A
Barium	A ¹	Nickel	A
Beryllium	A	Potassium	A
Cadmium	A	Selenium	J1,J4,J6
Calcium	A	Silver	A
Cobalt	J3	Sodium	A
Chromium	J2,J5	Thallium	J4
Copper	A ¹ ,J3,J5	Vanadium	A
Iron	A	Zinc	A ¹ ,J5
Lead	A	Cyanide	A

- A - Accept all data.
- A¹ - Accept data, raise the sample detection limit(s) due to blank contamination.
- J1 - Estimate (UJ) non-detects due to poor pre-digestion matrix spike recovery.
- J2 - Estimate (J) positive values due to poor serial dilution recovery.
- J3 - Estimate (UJ) positive values due to blank contamination and values < CRDL.
- J4 - Estimate (UJ) non-detects due to poor analytical spike recovery.
- J5 - Estimate (J) positive values less than 3X CRDL due to poor CRDL check standard recovery.
- J6 - Estimate (UJ) non-detects due to initial calibration correlation coefficient < 0.995.
- J7 - Estimate (J) positive values due to poor duplicate precision.

CLP VOLATILE ORGANIC ANALYSIS
CASE NO. 16259 SDG NO. AZ328
ANALYTICAL RESULTS

Sample Location	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	
Sample Number	MW14S	MW14S	MW11S	MW15S	MW18S			
Traffic Report Number	AZ328	AZ329	AZ330	AZ331	AZ332	AZ333	AZ334	
Remarks	50X Dil.	Dup. AZ328 50X Dil.				Rinsate	Trip Blank	
Sampling Date	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91	
Analysis Date	04/29/91	04/29/91	04/29/91	04/30/91	04/29/91	04/29/91	04/29/91	
VOLATILE ORGANIC COMPOUND	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Chloromethane								
Bromomethane								
Vinyl Chloride								
Chloroethane								
Methylene Chloride								
Acetone						25 J	30 J	
Carbon Disulfide								
1,1-Dichloroethene								
1,1-Dichloroethane								
1,2-Dichloroethene (Total)								
Chloroform								
1,2-Dichloroethane							13	
2-Butanone								
1,1,1-Trichloroethane	260	240						
Carbon Tetrachloride								
Vinyl Acetate								
Bromodichloromethane								
1,2-Dichloropropane								
cis-1,3-Dichloropropene								
Trichloroethene								
Dibromochloromethane								
1,1,2-Trichloroethane								
Benzene			14					
trans-1,3-Dichloropropene								
Bromoform								
4-Methyl-2-pentanone								
2-Hexanone								
Tetrachloroethene	97 J	90 J	4 J					
1,1,2,2-Tetrachloroethane								
Toluene	230000 *	240000 *	7	10				
Chlorobenzene	150 J	140 J	830 *	12				
Ethylbenzene	1200	1200		4 J				
Styrene								
Xylene (Total)	4000	3800		20				

A blank space indicates the compound was not detected.

J Quantitation is approximate due to limitations identified during the quality control review.

R Value is rejected.

* Value reported from diluted analysis.

CLP VOLATILE ORGANIC ANALYSIS
CASE NO. 16259 SDG NO. AZ328
SAMPLE QUANTITATION LIMITS

Sample Location	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	
Sample Number	MW14S	MW14S	MW11S	MW15S	MW18S			
Traffic Report Number	AZ328	AZ329	AZ330	AZ331	AZ332	AZ333	AZ334	
Remarks	50X Dil.	Dup. AZ328 50X Dil.				Rinsate	Trip Blank	
VOLATILE ORGANIC COMPOUND	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
Chloromethane	500	500	10	10	10	10	10	
Bromomethane	500	500	10	10	10	10	10	
Vinyl Chloride	500	500	10	10	10	10	10	
Chloroethane	500	500	10	10	10	10	10	
Methylene Chloride	250	250	5	5	5	5	5	
Acetone	1000 U	970 U	23 U	60 U	16 U	10	10	
Carbon Disulfide	250	250	5	5	5	5	5	
1,1-Dichloroethene	250	250	5	5	5	5	5	
1,1-Dichloroethane	250	250	5	5	5	5	5	
1,2-Dichloroethene (Total)	250	250	5	5	5	5	5	
Chloroform	250	250	5	5	5	5	5	
1,2-Dichloroethane	250	250	5	5	5	5	5	
2-Butanone	500 R	500 R	10 R	10	10 R	10 R	10 R	
1,1,1-Trichloroethane	250	250	5	5	5	5	5	
Carbon Tetrachloride	250	250	5	5	5	5	5	
Vinyl Acetate	500	500	10	10	10	10	10	
Bromodichloromethane	250	250	5	5	5	5	5	
1,2-Dichloropropane	250	250	5	5	5	5	5	
cis-1,3-Dichloropropene	250	250	5	5	5	5	5	
Trichloroethene	250	250	5	5	5	5	5	
Dibromochloromethane	250	250	5	5	5	5	5	
1,1,2-Trichloroethane	250	250	5	5	5	5	5	
Benzene	250	250	5	5	5	5	5	
trans-1,3-Dichloropropene	250	250	5	5	5	5	5	
Bromoform	250	250	5	5	5	5	5	
4-Methyl-2-pentanone	500	500	10	10	10	10	10	
2-Hexanone	500	500	10	10	10	10	10	
Tetrachloroethene	250	250	5	5	5	5	5	
1,1,2,2-Tetrachloroethane	250	250	5	5	5	5	5	
Toluene	10000 *	10000 *	5	5	5	5	5	
Chlorobenzene	250	250	50 *	5	5	5	5	
Ethylbenzene	250	250	5	5	5	5	5	
Styrene	250	250	5	5	5	5	5	
Xylenes (Total)	250	250	5	5	5	5	5	

UJ Quantitation limit is approximate due to limitations identified during the quality control review.

R Value is rejected.

* Elevated due to diluted value used.

CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 16259 SDG NO. AZ328

ANALYTICAL RESULTS

Sample Location	Ciba Geigy							
Sample Number	MW14S	MW14S	MW11S	MW15S	MW18S			
Traffic Report Number	AZ328	AZ329	AZ330	AZ331	AZ332	AZ333		
Remarks		Dup. AZ328				Rinsate		
Sampling Date	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91		
Extraction Date	04/22/91	04/22/91	04/22/91	04/22/91	04/22/91	04/22/91		
Analysis Date	04/28/91	04/28/91	04/28/91	04/28/91	04/28/91	04/28/91		
SEMI-VOLATILE COMPOUND	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Phenol	410 *	410 *		52				
bis (2-Chloroethyl) ether								
2-Chlorophenol								
1,3-Dichlorobenzene								
1,4-Dichlorobenzene								
Benzyl Alcohol	170 *	160 *						
1,2-Dichlorobenzene	100	97						
2-Methylphenol	480 *	470 *						
bis (2-Chloroisopropyl)ether								
4-Methylphenol	200 *	200 *		54				
N-Nitroso-di-n-propylamine								
Hexachloroethane								
Nitrobenzene								
Isophorone								
2-Nitrophenol								
2,4-Dimethylphenol	40	38						
Benzoic acid	1000 *	970 *						
bis (2-Chloroethoxy) methane								
2,4-Dichlorophenol	1400 *	1300 *		26				
1,2,4-Trichlorobenzene								
Naphthalene	13	12						
4-Chloroaniline								
Hexachlorobutadiene								
4-Chloro-3-methylphenol	26	27						
2-Methylnaphthalene								
Hexachlorocyclopentadiene								
2,4,6-Trichlorophenol								
2,4,5-Trichlorophenol								
2-Chloronaphthalene								
2-Nitroaniline								
Dimethylphthalate								
Acenaphthylene								
2,6-Dinitrotoluene								

CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 16259 SDG NO. AZ328
ANALYTICAL RESULTS

Sample Location	Ciba Geigy							
Sample Number	MW14S	MW14S	MW11S	MW15S	MW18S			
Traffic Report Number	AZ328	AZ329	AZ330	AZ331	AZ332	AZ333		
Remarks		Dup. AZ328				Rinsate		
SEMI-VOLATILE COMPOUND	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
3-Nitroaniline								
Acenaphthene								
2,4-Dinitrophenol								
4-Nitrophenol								
Dibenzofuran								
2,4-Dinitrotoluene								
Diethylphthalate								
4-Chlorophenyl-phenylether								
Fluorene								
4-Nitroaniline								
4,6-Dinitro-2-methylphenol								
N-Nitrosodiphenylamine								
4-Bromophenyl-phenylether								
Hexachlorobenzene								
Pentachlorophenol								
Phenanthrene								
Anthracene								
Di-n-butylphthalate								
Fluoranthene								
Pyrene								
Butylbenzylphthalate								
3,3'-Dichlorobenzidine								
Benzo(a)anthracene								
Chrysene								
bis(2-Ethylhexyl)phthalate								
Di-n-octyl phthalate								
Benzo(b)fluoranthene								
Benzo(k)fluoranthene								
Benzo(a)pyrene								
Indeno (1,2,3-cd)pyrene								
Dibenz(a,h)anthracene								
Benzo(g,h,i)perylene								

A blank space indicates the compound was not detected.

J Quantitation is approximate due to limitations identified during the quality control review.

R Value is rejected.

* Result obtained through dilution.

CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 16259 SDG NO. AZ328
SAMPLE QUANTITATION LIMITS

Sample Location	Ciba Geigy							
Sample Number	MW14S	MW14S	MW11S	MW15S	MW18S			
Traffic Report Number	AZ328	AZ329	AZ330	AZ331	AZ332	AZ333		
Remarks		Dup. AZ328				Rinsate		
SEMI-VOLATILE COMPOUND	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Phenol	100 *	100 *	10	10	10	10		
bis (2-Chloroethyl) ether	10	10	10	10	10	10		
2-Chlorophenol	10	10	10	10	10	10		
1,3-Dichlorobenzene	10	10	10	10	10	10		
1,4-Dichlorobenzene	10	10	10	10	10	10		
Benzyl Alcohol	100 *	100 *	10	10	10	10		
1,2-Dichlorobenzene	10	10	10	10	10	10		
2-Methylphenol	100 *	100 *	10	10	10	10		
bis (2-Chloroisopropyl)ether	10	10	10	10	10	10		
4-Methylphenol	100 *	100 *	10	10	10	10		
N-Nitroso-di-n-propylamine	10	10	10	10	10	10		
Hexachloroethane	10	10	10	10	10	10		
Nitrobenzene	10	10	10	10	10	10		
Isophorone	10	10	10	10	10	10		
2-Nitrophenol	10	10	10	10	10	10		
2,4-Dimethylphenol	10	10	10	10	10	10		
Benzoic acid	500 *	500 *	50	50	50	50		
bis (2-Chloroethoxy) methane	10	10	10	10	10	10		
2,4-Dichlorophenol	100 *	100 *	10	10	10	10		
1,2,4-Trichlorobenzene	10	10	10	10	10	10		
Naphthalene	10	10	10	10	10	10		
4-Chloroaniline	10 UJ							
Hexachlorobutadiene	10	10	10	10	10	10		
4-Chloro-3-methylphenol	10	10	10	10	10	10		
2-Methylnaphthalene	10	10	10	10	10	10		
Hexachlorocyclopentadiene	10	10	10	10	10	10		
2,4,6-Trichlorophenol	10	10	10	10	10	10		
2,4,5-Trichlorophenol	50	50	50	50	50	50		
2-Chloronaphthalene	10	10	10	10	10	10		
2-Nitroaniline	50	50	50	50	50	50		
Dimethylphthalate	10	10	10	10	10	10		
Acenaphthylene	10	10	10	10	10	10		
2,6-Dinitrotoluene	10	10	10	10	10	10		

UJ Quantitation limit is approximate due to limitations identified during the quality control review.

R Value is rejected.

CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 16259 SDG NO. AZ328
SAMPLE QUANTITATION LIMITS

Sample Location	Ciba Geigy							
Sample Number	MW14S	MW14S	MW11S	MW15S	MW18S			
Traffic Report Number	AZ328	AZ329	AZ330	AZ331	AZ332	AZ333		
Remarks		Dup. AZ328				Rinsate		
SEMI-VOLATILE COMPOUND	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
3-Nitroaniline	50 UJ							
Acenaphthene	10	10	10	10	10	10		
2,4-Dinitrophenol	50	50	50	50	50	50		
4-Nitrophenol	50	50	50	50	50	50		
Dibenzofuran	10	10	10	10	10	10		
2,4-Dinitrotoluene	10	10	10	10	10	10		
Diethylphthalate	10	10	10	10	10	10		
4-Chlorophenyl-phenylether	10	10	10	10	10	10		
Fluorene	10	10	10	10	10	10		
4-Nitroaniline	50 UJ							
4,6-Dinitro-2-methylphenol	50	50	50	50	50	50		
N-Nitrosodiphenylamine	10	10	10	10	10	10		
4-Bromophenyl-phenylether	10	10	10	10	10	10		
Hexachlorobenzene	10	10	10	10	10	10		
Pentachlorophenol	50	50	50	50	50	50		
Phenanthrene	10	10	10	10	10	10		
Anthracene	10	10	10	10	10	10		
Di-n-butylphthalate	10	10	10	10	10	10		
Fluoranthene	10	10	10	10	10	10		
Pyrene	10	10	10	10	10	10		
Butylbenzylphthalate	10	10	10	10	10	10		
3,3'-Dichlorobenzidine	20	20	20	20	20	20		
Benzo(a)anthracene	10	10	10	10	10	10		
Chrysene	10	10	10	10	10	10		
bis(2-Ethylhexyl)phthalate	10 U	10	10	10	10	10		
Di-n-octyl phthalate	10	10	10	10	10	10		
Benzo(b)fluoranthene	10	10	10	10	10	10		
Benzo(k)fluoranthene	10	10	10	10	10	10		
Benzo(a)pyrene	10	10	10	10	10	10		
Indeno (1,2,3-cd)pyrene	10	10	10	10	10	10		
Dibenz(a,h)anthracene	10	10	10	10	10	10		
Benzo(g,h,i)perylene	10	10	10	10	10	10		

UJ Quantitation limit is approximate due to limitations identified during the quality control review.

R Value is rejected.

* Elevated due to diluted value used.

CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 16259 SDG NO. AZ328
ANALYTICAL RESULTS

Sample Location	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	
Sample Number	MW14S	MW14S	MW11S	MW15S	MW18S		
Traffic Report Number	AZ328DL	AZ329DL	AZ330	AZ331	AZ332	AZ333	
Remarks	100X Dil.	Dup. AZ328 100X Dil.				Rinsate	
Sampling Date	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91	
Extraction Date	04/22/91	04/22/91	04/22/91	04/22/91	04/22/91	04/22/91	
Analysis Date	05/01/91	05/02/91	04/28/91	04/28/91	04/29/91	04/30/91	
PESTICIDE/PCB							
COMPOUND	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
alpha-BHC							
beta-BHC							
delta-BHC							
gamma-BHC (Lindane)							
Heptachlor							
Aldrin			0.071 J	0.28 J			
Heptachlor epoxide			0.053	1.4			
Endosulfan I							
Dieldrin							
4,4'-DDE							
Endrin							
Endosulfan II							
4,4'-DDD				0.32 J			
Endosulfan sulfate							
4,4'-DDT							
Methoxychlor			6.3	0.73 J			
Endrin ketone			0.14				
alpha-Chlordane							
gamma-Chlordane							
Toxaphene							
Aroclor-1016							
Aroclor-1221							
Aroclor-1232							
Aroclor-1242							
Aroclor-1248							
Aroclor-1254							
Aroclor-1260							

A blank space indicates the compound was not detected.

J Quantitation is approximate due to limitations identified during the quality control review.

R Value is rejected.

CLP EXTRACTABLE ORGANIC ANALYSIS
CASE NO. 16259 SDG NO. AZ328
SAMPLE QUANTITATION LIMITS

Sample Location	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	
Sample Number	MW14S	MW14S	MW11S	MW15S	MW18S		
Traffic Report Number	AZ328DL	AZ329DL	AZ330	AZ331	AZ332	AZ333	
Remarks	100X Dil.	Dup. AZ328 100X Dil.				Rinsate	
PESTICIDE/PCB COMPOUND	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
alpha-BHC	5.0	5.0	0.050	0.050	0.050	0.050	
beta-BHC	5.0	5.0	0.050	0.050	0.050	0.050	
delta-BHC	5.0	5.0	0.050	0.050	0.050	0.050	
gamma-BHC (Lindane)	5.0	5.0	0.050	0.050	0.050	0.050	
Heptachlor	5.0	5.0	0.050	0.050	0.050	0.050	
Aldrin	5.0	5.0	0.050	0.050	0.050	0.050	
Heptachlor epoxide	5.0	5.0	0.050	0.050	0.050	0.050	
Endosulfan I	5.0	5.0	0.050	5.0 *	0.050	0.050	
Dieldrin	10	10	0.10	10 *	0.10	0.10	
4,4'-DDE	10	10	0.10	10 *	0.10	0.10	
Endrin	10	10	0.10	0.10	0.10	0.10	
Endosulfan II	10	10	0.10	0.10	0.10	0.10	
4,4'-DDD	10	10	0.10	0.10	0.10	0.10	
Endosulfan sulfate	10	10	0.10	0.10	0.10	0.10	
4,4'-DDT	10	10	0.10	0.10	0.10	0.10	
Methoxychlor	50	50	0.50	0.50	0.50	0.50	
Endrin ketone	10	10	0.10	0.10	0.10	0.10	
alpha-Chlordane	50	50	0.50	50 *	0.50	0.50	
gamma-Chlordane	50	50	0.50	50 *	0.50	0.50	
Toxaphene	100	100	1.0	1.0	1.0	1.0	
Aroclor-1016	50	50	0.50	0.50	0.50	0.50	
Aroclor-1221	50	50	0.50	0.50	0.50	0.50	
Aroclor-1232	50	50	0.50	0.50	0.50	0.50	
Aroclor-1242	50	50	0.50	0.50	0.50	0.50	
Aroclor-1248	50	50	0.50	0.50	0.50	0.50	
Aroclor-1254	100	100	1.0	1.0	1.0	1.0	
Aroclor-1260	100	100	1.0	1.0	1.0	1.0	

UJ Quantitation limit is approximate due to limitations identified during the quality control review.

R Value is rejected.

* Results reported from the dilution.

CLP INORGANIC ANALYSIS
CASE NO. 16259 SDG NO. MAT367
ANALYTICAL RESULTS

Sample Location	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy	Ciba Geigy		
Sample Number	MW-145	MW-145	MW-115	MW-155	MW-185			
Traffic Report Number	MAT367	MAT368	MAT369	MAT370	MAT371	MAT372		
Remarks		Dup. of MAT367				Field Blank		
Sampling Date	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91		
Inorganic Elements	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Aluminum P	3680 J	5340 J	5460 J	5070 J	10600 J	20.5 J		
Antimony P								
Arsenic F	19.7	13.3	32.3	36.2	16.1			
Barium P	75.1	75.8		132	117			
Beryllium P			1.2					
Cadmium P								
Calcium P	53500	51500	25000	52700	31500			
Chromium P	8.0 J	13.3 J	23.9 J	34.9 J	162 J			
Cobalt P								
Copper P						9.4 J		
Iron P	9860	12400	32500	31000	17300			
Lead F	8.8	8.4	23.2	7.5	8.1	1.1		
Magnesium P	5980	6300	4070	6560	5730			
Manganese P	4500	4340	352	1930	1210			
Mercury V								
Nickel P	22.0	22.3	13.8	70.0	275			
Potassium P	7400	7450	3530	13800	6930			
Selenium F								
Silver P								
Sodium P	115000	109000	11300	27100	21300	128		
Thallium F								
Vanadium P	12.4	14.2	12.8	11.6	21.9			
Zinc P			2420	99.0	61.9	10.3 J		
Cyanide C								

Analytical Method

A blank space indicates the element was not detected.

F Furnace

J Quantitation is approximate due to limitations identified in the quality control review.

P ICP/Flame AA

R Value is rejected.

V Cold Vapor

NA Not Analyzed

C Colorimetric

Sample Detection Limits for the elements listed above are reported in Table 8.

CLP INORGANIC ANALYSIS
CASE NO. 16259 SDG NO. MAT367
SAMPLE DETECTION LIMITS

Sample Location	Ciba Gelgy	Ciba Gelgy	Ciba Gelgy	Ciba Gelgy	Ciba Gelgy	Ciba Gelgy		
Sample Number	MW-145	MW-145	MW-115	MW-155	MW-185			
Traffic Report Number	MAT367	MAT368	MAT369	MAT370	MAT371	MAT372		
Remarks		Dup. of MAT367				Field Blank		
Sampling Date	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91	04/18/91		
Percent Solids	0.0	0.0	0.0	0.0	0.0	0.0		
Inorganic Elements	Instrument Detection Limits (ug/L)	ug/L	ug/L	ug/L	ug/L	ug/L		
Aluminum	P 14.0	14.0	14.0	14.0	14.0	14.0		
Antimony	P 17.0	17.0	17.0	17.0	17.0	17.0		
Arsenic	F 2.0	2.0	2.0	2.0	2.0	2.0		
Barium	P 2.0	2.0	2.0	36.0	2.0	2.0		
Beryllium	P 1.0	1.0	1.0	1.0	1.0	1.0		
Cadmium	P 3.0	3.0	3.0	3.0	3.0	3.0		
Calcium	P 15.0	15.0	15.0	15.0	15.0	15.0		
Chromium	P 3.0	3.0	3.0	3.0	3.0	3.0		
Cobalt	P 4.0	4.0	6.1 UJ	4.0	5.9 UJ	11.7 UJ		
Copper	P 4.0	16.1 UJ	14.8 UJ	41.3	11.7 UJ	25.3		
Iron	P 8.0	8.0	8.0	8.0	8.0	8.0		
Lead	F 1.0	1.0	1.0	1.0	1.0	1.0		
Magnesium	P 29.0	29.0	29.0	29.0	29.0	29.0		
Manganese	P 1.0	1.0	1.0	1.0	1.0	1.0		
Mercury	V 0.2	0.2	0.2	0.2	0.2	0.2		
Nickel	P 5.0	5.0	5.0	5.0	5.0	5.0		
Potassium	P 72.0	72.0	72.0	72.0	72.0	72.0		
Selenium	F 4.0	4.0 UJ	4.0 UJ	4.0 UJ	4.0 UJ	20.0 UJ		
Silver	P 5.0	5.0	5.0	5.0	5.0	5.0		
Sodium	P 24.0	24.0	24.0	24.0	24.0	24.0		
Thallium	F 3.0	15.0 UJ	3.0 UJ	3.0	3.0 UJ	3.0 UJ		
Vanadium	P 3.0	3.0	3.0	3.0	3.0	3.0		
Zinc	P 7.0	31.7	30.5	7.0	7.0	7.0		
Cyanide	C 10.0	10.0	10.0	10.0	10.0	10.0		

Analytical Method

F Furnace AA P ICP/Flame AA V Cold Vapor C Colorimetric

Sample's wet weight (gms) digested:

for Hg analysis								
for ICP analysis								
for furnace AA analysis								
for Cyanide analysis								

Volumes used in preparing sample for analysis:

for Hg analysis	100 mls
for ICP and AA analysis	200 mls
for Cyanide analysis	250 mls

UJ Value is undetected and the quantitation is approximate due to limitations identified in the quality control review.

R Value is rejected.